

In re application of
Chandler Fulton et al.
Application No.: 09/675,509
Page 2 of 13

Atty. Dkt. No. 073442-0301

Listing of Claims:

Please amend claims 1, 3, 10-11, 18, and 25-27, cancel claims 28-31, and add claim 32 as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method of inducing apoptosis of a selected group of vertebrate cells *in vivo*, comprising administering to a vertebrate comprising said cells a ~~thiaminase or derivative thereof or a~~ non-pathogenic bacterium selected from the group consisting of *C. sporogenes*, *C. beijerinckii*, and *S. typhimurium* comprising a recombinant nucleic acid molecule encoding ~~[[said]]~~ thiaminase I from *N. gruberi* or derivative targeted to said selected group of vertebrate cells, thereby reducing the level of thiamin in said cells sufficiently to induce apoptosis of said cells.

2. (Canceled)

3. (Currently Amended) A method for delivering ~~[[a]]~~ thiaminase I from *N. gruberi* or derivative thereof to vertebrate cells *in vivo*, comprising the step of contacting said cells with a non-pathogenic bacterium selected from the group consisting of *C. sporogenes*, *C. beijerinckii*, and *S. typhimurium* comprising a nucleic acid sequence encoding said thiaminase ~~or derivative~~.

4. (Canceled)

5. (Canceled)

6. (Canceled)

DLMR_275912.2

In re application of
Chandler Fulton et al.
Application No.: 09/675,509
Page 3 of 13

Atty. Dkt. No. 073442-0301

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Currently Amended) A eukaryotic expression vector comprising a recombinant nucleic acid sequence encoding **[[a]]** thiaminase **I from *N. gruberi***.

11. (Currently Amended) A vector comprising a recombinant nucleic acid sequence encoding **[[a]]** thiaminase **I from *N. gruberi***, ~~wherein said thiaminase or derivative is different from a thiaminase from *Bacillus thiaminolyticus*.~~

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Withdrawn) An isolated, purified, or enriched thiaminase or derivative, wherein said thiaminase is not a *Bacillus thiaminolyticus* thiaminase.

17. (Withdrawn) The thiaminase or derivative of claim 16, wherein said thiaminase or derivative is a homolog of a *Naegleria gruberi* thiaminase or derivative.

DLMR_276912.2

In re application of
Chandler Fulton et al.
Application No.: 09/675,509
Page 4 of 13

Atty. Dkt. No. 073442-0301

18. (Currently Amended) A purified, enriched, or isolated nucleic acid sequence encoding ~~[[a]] thiaminase I from *N. gruberi* or derivative different from *Bacillus thiaminolyticus* thiaminase-I~~, wherein said nucleic acid sequence is at least ~~[[70%]]~~ **20%** identical to an equal length sequence at least ~~[[500]]~~ **200** nucleotides in length of the ~~*Naegleria*~~ *N. gruberi* thiaminase sequence of SEQ ID NO. 3.

19. (Previously presented) The nucleic acid sequence of claim 18, wherein said nucleic acid sequence comprises a sequence at least 95% identical to the sequence of SEQ ID NO. 3.

20. (Withdrawn) A method for identifying a nucleic acid sequence coding for a thiaminase from a species different from *Naegleria gruberi* or *Bacillus thiaminolyticus*, comprising
identifying a nucleic acid sequence from said species that is homologous to a thiaminase sequence from *Naegleria gruberi* or *Bacillus thiaminolyticus*.

21. (Withdrawn) The method of claim 20, wherein said identifying comprises amplifying a nucleic acid sequence from said species using primers derived from *Naegleria gruberi* or *Bacillus thiaminolyticus*.

22. (Withdrawn) The method of claim 20, wherein said identifying comprises performing sequence comparisons in a sequence database to identify homologous sequences.

23. (Withdrawn) The method of claim 20, wherein said identifying comprises probing nucleic acid from said species with probes derived from *Naegleria gruberi* or *Bacillus thiaminolyticus*.

DLMR_275912.2

In re application of
Chandler Fulton et al.
Application No.: 09/675,509
Page 5 of 13

Atty. Dkt. No. 073442-0301

24. (Withdrawn) The method of claim 20, wherein said identifying comprises sequencing at least a portion of a thiaminase sequence isolated from said species; and identifying a nucleic acid sequence from said species encoding said thiaminase sequence.

25. (Currently Amended) A non-pathogenic bacterium selected from the group consisting of *C. sporogenes*, *C. beijerinckii*, and *S. typhimurium* comprising a recombinant nucleic acid sequence encoding [[a]] thiaminase I from *N. gruberi*.

26. (Currently Amended) The bacterium of claim 25, wherein said bacterium is a ~~Clostridium bacterium~~ *C. sporogenes*.

27. (Currently Amended) The bacterium of claim 25, wherein said bacterium is a ~~Salmonella bacterium~~ *S. typhimurium*.

28. (Cancelled) The method of claim 1, wherein said thiaminase is at least 35% identical to the thiaminase of SEQ ID NO: 4.

29. (Cancelled) The method of claim 1, wherein said thiaminase is at least 50% identical to the thiaminase of SEQ ID NO: 4.

30. (Cancelled) The method of claim 3, wherein said thiaminase is at least 35% identical to the thiaminase of SEQ ID NO: 4.

31. (Cancelled) The method of claim 3, wherein said thiaminase is at least 50% identical to the thiaminase of SEQ ID NO: 4.

DLMR_275912.2

In re application of
Chandler Fulton et al.
Application No.: 09/675,509
Page 6 of 13

Atty. Dkt. No. 073442-0301

32. (New) The bacterium of claim 25, wherein said bacterium is *C. beijerinckii*.

DLMR_275912.2